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The Effectiveness of Horticultural Therapy Groups on Adults with a Diagnosis of Depression

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Abstract

Horticultural therapy as an alternative treatment for adults with Major Depressive Disorder has been shown to be effective as an alternative therapeutic intervention to treat or mediate symptoms of depression. The author will explore its effectiveness on maintaining mental health self-care for adults who are diagnosed with depression. The evaluation of a reciprocal relationship between plant and person and the effective role it has as a therapeutic alternative will also be explored. The research examined proves there is a need for additional research on the effectiveness of horticultural therapy psycho-educational groups. The author will note observable changes in indicators of depression and will summarize the changes in indicators as a method to track group effectiveness. The data analysis presented from the depression inventory, which was given to the 13 adult participant's in this study, all aged over 21. The results indicate that many depressive symptoms such as feelings of sadness and low mood decreased for participants in this group project.

Gardening among the disabled and mentally ill can be effective for healing, restoring, and improving health and wellbeing in the recovery of depressive symptoms. Knowing and understanding the symptoms of depression, using selected skills, and strategies including horticultural therapy to reduce the impact of depression may improve functioning for the participant in a horticultural therapy psycho-educational group. Through horticultural therapy, an individual can strengthen coping skills for depression through horticultural activities which can lessen depressive symptoms.

The purpose of this research is to evaluate if horticultural therapy works as an alternative treatment to mediate or treat depression in adults with a mental health diagnosis of Major Depressive Disorder. Horticultural therapy is currently used with the following populations: the elderly, individuals with Major Depressive Disorder, individuals experiencing chronic fatigue and burnout, and patients recovering from surgery.

Fried and Wichrowski (2008) stated there are a modest number of studies that describe clinical effects of horticultural therapy, however there is an increasing body of literature that supports the benefits of interaction with nature. Horticultural therapy provides a wide range of physical, emotional, cognitive, and social benefits which helps reduce stress (Fried & Wichrowski, 2008).

There is a fair amount of literature that suggests a reciprocal relationship between plant and person can be a therapeutic alternative to mental health self-care for individuals with depression (Fried & Wichrowski, 2008). The study will focus on the effectiveness of horticultural therapy with adults. The research will also reflect on horticultural therapy in several other populations which include, children and the elderly. The study will also examine a plethora of settings where horticultural therapy psycho-educational groups are implemented including hospitals, rehabilitation centers, nursing homes and schools. An exploration of the limitations to the research will be explored in addition to the analysis of the depression inventory data for adult participants in this study.

Review of the literature

Depression is a common mental health disorder that is manifested in depressed mood, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, low energy and poor

concentration (Fu & Parahoo, 2008). Even in its mildest form, it interferes with the quality of life and performance of individuals (Fu & Parahoo, 2008). Socio-economic and cultural changes can affect an individual's mental health, which can contribute to feelings of depression (Fu & Parahoo, 2008). The following literature that was examined will explore the prevalence of Major Depressive Disorder, traditional and non traditional treatments for Major Depressive Disorder, and the effectiveness of horticultural therapy in various settings. An examination of the populations that have benefitted from horticultural therapy will also be explored.

Prevalence of major depressive disorder

At least 3% of the US population suffers from chronic depression (Sutherland, Sutherland, & Hoehns, 2003). More than 17% of the US population has had a major depressive episode in their lifetime, and more than 10% have experienced an episode within the past 12 months (Sutherland et al., 2003). Patients diagnosed with depression average 5 depressive episodes in their life and may have recurrences every 4 to 6 years (Sutherland et al., 2003).

Diagnosing depression

There are several processes that clinicians follow prior to making a diagnosis of depression. The use of depression inventories can be used as an aid in diagnosing depression. An example of two depression inventories includes the Hamilton Rating Scale for Depression (Minami, Serlin, Kircher & Brown, 2007). Also the Beck Depression Inventory I & II (Minami et al., 2007). The Hamilton Rating Scale for Depression measures specific symptoms of depression rated by an observer. The Beck Depression Inventory is a client self reporting instrument (Minami et al., 2007). According to Andrews (2008), there are no laboratory tests for a major depressive episode and diagnosis has depended on trained clinicians' asking individuals about their symptoms. The DSM-IV lists 5 criteria to satisfy the diagnosis. The first criterion lists 9 symptoms, 5 of which must be present and at least 1 of the 5 must be depressed mood or loss of interest or pleasure for the diagnosis to be met.

According to Patten et al. (2005), epidemiologic studies have documented an elevated prevalence of major depression with various long-term medical conditions which suggests that depression can also be

caused by various medical illnesses. It has also been discussed that individuals can become depressed due to their debilitating medical illness. Such conditions include epilepsy, hypothyroidism, multiple sclerosis, and pancreatic cancer (Patten et al., 2005). Recognizing the associations between long-term medical conditions and major depression in the population are important for clinical practice and for health service planning.

MacDonagh (2009) stated, depressed individuals lose awareness and attentiveness of others, as they tend to withdraw from others. The therapist role is to bring a depressed person back to responsiveness to the others' reactions and needs. The combination of the above processes in addition to several others leads clinicians in making a diagnosis of depression. Most clinicians have different therapeutic practices in an effort to treat individuals who are depressed.

Traditional treatments for depression

The treatment of depression is individualistic. Antidepressant medications are frequently prescribed. Antidepressant agents include selective serotonin re-uptake inhibitors also known as (SSRIs) and tricyclic antidepressants commonly referred to as (TCAs). SSRIs have fewer side effects than TCAs (Messaoudi, Bisson, Nejdi, Rozan, & Javelot, 2008). There are also non-medicinal therapeutic treatments for depression that have been used in conjunction with antidepressants. A study on Eye Movement Desensitization and Reprocessing (EMDR) was used and proven effective for the treatment of individuals who experience several mental health symptoms including depression (Silver, Rogers, & Russell, 2008). EMDR is primarily used to treat trauma, however, studies have shown that it can be effective in treating depression as well. EMDR was found to reduce symptoms of combat veterans in a variety of clinical domains (Silver et al., 2008).

Psychotherapy can be an effective treatment for depression as well. Psychotherapy assists the client in exploring the underlying reasons for depression and helps the client learn new coping skills. Bellino, Rinaldi, and Bogetto (2010) found that combined treatment with interpersonal psychotherapy and antidepressants was more effective than single pharmacotherapy in patients with major depression and borderline personality disorder. The most popular therapy for treating depression is Cognitive- behavioral

therapy (Montgomery, Kunik, Wilson, Stanley, & Weiss, 2010). Randomized controlled clinical trials show that CBT is effective for generalized anxiety disorder, major depressive disorder, and other mental illnesses (Montgomery et al., 2010).

Sutherland et al. (2003) looked at achieving the best outcome for treating depression; 73% of patients with chronic depression were treated with combination therapy nefazodone and psychotherapy. The participants showed a reduction of depressive symptoms by 50% or more on the Hamilton Rating Scale for Depression.

Alternative treatments for depression

Conventional treatments for depression such as psychotherapy and pharmacotherapy, provide relief for approximately 50%-70% of patients who complete treatment (Zhang, Yang, & Zhong, 2009). One third of individuals who access treatment for depression terminate prematurely because they are not satisfied with their present treatment or these individuals are unable to tolerate the side effects from the medication they are prescribed (Zhang et al., 2009). A study by Zhang, Yang, and Zhong (2009) looked at acupuncture in combination with Fluoxetine as an alternative to treat individuals with major depressive disorder. The study showed one group received daily, 10 mg. of Fluoxetine, placebo, and verum acupuncture.

The other group received daily, 20-30 mg. of Fluoxetine and sham acupuncture. Sham acupuncture involves needling the patient at defined non-acupuncture points (Streitberger et al., 2004). Verum (real) acupuncture is a needling intervention intended to have a specific therapeutic effect (White, Golianu, Zaslawski, & Seung-Hoon, 2006). The participants who received the lower dose of Fluoxetine and verum acupuncture showed improvement in depressive symptoms.

The Sequenced Treatment Alternatives to Relieve Depression (STAR*D) trial is considered an alternative treatment for depression. The STAR*D trial is an effectiveness trial of pharmacotherapy and psychotherapy that examines patients in real world settings such as outpatient mental health settings. Subjects in this trial were clients' that participated in outpatient therapy in a clinical setting, all were diagnosed with Major Depressive Disorder (Sinyor, Schaffer, & Levitt, 2010). This treatment allows

patients to make personal choices regarding open label treatment for depression based on the patients' preferences. Traditional double blind randomized control trials (RCT's) do not disclose the identity of treatments to the patient and treating physician. Open labeled treatment by definition in a pragmatic trial such as the STAR*D trial makes treatments known to the patient and treating physician while at the same time decreasing bias, by allowing outcome measurement assessors who are independent of the treatment team not be privy to information regarding the therapy (Sinyor et al., 2010).

This trial differs from RCT's by broadening inclusion criteria, minimizing exclusion criteria, integrating patient choice, and open-label treatment. Participants were treated on four different treatment levels. Level one included participant's receiving doses of Citalopram over 14 weeks, level two includes patient choice regarding treatment, level three focuses on augmentation of treatments, and level four used randomized treatments or combination treatments. The STAR*D trial proved to be effective at standardizing and optimizing treatments as remission rates for treatment level one were 18% to 30% and level two rates were 7% to 25% (Sinyor et al., 2010).

White (2006) looked at complementary and alternative medicine (CAM) as a treatment for depression and anxiety, 67% of individuals who suffer from depression and anxiety use CAM services. Some examples of CAM include herbal treatments, acupuncture, and vitamins. Yogic breathing techniques have been used as an alternative in treating depression. Franzblau (2010) investigated women who experienced feelings of depression due to interpersonal violence. Yogic breathing and personal testimony proved to be effective for these women. The participants in this study were evaluated in a pre-test and post-test form based on their answers to the BDI-II. The study proved that BDI-II scores of the women involved in Yogic breathing moved from mild to minimal. Women involved in both yogic breathing and personal testimony noted the largest decrease in depression scores.

Beattie, Shaw, Kaur, and Kessler (2009) looked at how online CBT can enhance care for primary care patients with depression. Participants were given a manual that provided information on how to access sessions. The sessions were in the format of question and answer. Participant's who experienced this type of therapy were more comfortable disclosing issues related to depression with a therapist that

they could not see which reduced feelings of embarrassment. Certain patient's with depression especially patient's who are familiar with computers, felt comfortable reviewing and reflecting typed feelings and were attracted to the anonymity of an online therapeutic relationship (Beattie, Shaw, Kaur, & Kessler, 2009).

Horticultural therapy

According to Pfeffer, Deyton, and Fly (2005):

> Historically, plants have been associated with healing. Most indigenous people of the American Indians, African tribes, and Australian aboriginals viewed the earth as their Mother, and saw a very spiritual connection between themselves and the plants that surrounded and were accessible to them (p.26).

Rhizopoulou and Katsarou (2008) discussed, Dioscorides, a Greek physician who lived in the Christian era (c.40-c. 90 AC), who wrote about the medicinal uses and properties of hundreds of plants. The writings were reported to be the basis of pharmacology, medicine, and herbal writing. While historically plants have been used for their medicinal properties, there is a growing movement to use the aura of plants to assist with the healing of individuals.

Horticultural therapy includes interventions mediated by nature-oriented views and spaces such as gardens and everything associated with them, plants and materials related to them, and garden occupations performed for healing, restoring, improving health and well-being, rehabilitation, or simply for general benefit (Söderback, Söderström, & Schländer, 2004). Horticulture therapy involves working with plants as a therapeutic tool to improve cognitive, social, emotional, and physical aspects of patients (Pfeffer et al.,2005).

A study by Kingsley, Townsend, and Wilson (2009), demonstrated that community gardens have individual health and well-being benefits by offering an escape from stress and a social outlet in environment. Participant's noted joining community garden programs helped them to feel happier in their everyday lives and improved their well-being. The community garden was described as being a therapeutic source of reinvigoration and relaxation.

Morgan, Hamilton, Bentley, and Myrie (2009) looked at garden based youth education in the Brooklyn Botanic Garden's Project Green Reach. Inner city students and teachers in grades K-8 participated in this study. Significant changes occurred in participant's homes, school environments, academics, and interdisciplinary skills. The Green Reach Project also created, a positive life experience, and culture change. Blair (2009), in a separate study on school gardens found the following benefits for children: academic, behavioral, recreational, social, political, and environmental remediation.

Another study investigated the effects of implementing a horticultural therapy group for sensory integration development of children (Wagenfield, 2008). The sensory gardening program focused on the parts of the activity that involved touching, body awareness, balance, smelling, seeing, hearing, and in some cases tasting. When working in a group in the garden children have opportunities to build peer relationships and improve social skills. Child participant's expanded their intellectual development, in the following areas vocabulary, problem solving skills, learning to follow directions, maintaining attention to tasks, and developing a greater appreciation of environmental sustainability (Wagenfield, 2008).

Austin, Johnston, and Morgan (2006) investigated community gardening at a senior center and found there was an impact on functional health, depression, and physical fitness. All participants experienced improved function for physical fitness, feelings, change in overall health, social support, social activities, and quality of life. Social activities were statistically significant (p=. 046) and 100% (n=6) reported their physical and emotional health had not limited their social activities with family, friends, neighbors, or groups. A separate study on the effects of a horticulture activity program for the elderly in a long term care facility found that the horticulture group had a significant increase in current psychological well-being compared to the control group who did not participate in the group (Barnicle & Midden, 2003).

A study on garden clubs in a long-term care facility looked at horticultural programs for individuals who experience depression due to being separated from their spouse. The study found the importance of horticulture as a stage for social interaction. The growth of garden clubs and plant societies testifies to social interaction (Martin, Miranda, & Bean, 2007). In a similar study of patient's in long-term

care facilities, Baker (2009) looked at the effects of a horticultural group. Client's were able to develop new levels of self-expression, stimulation of thought processes, personal creativity, and sense of purpose. The study showed positive thoughts and feelings are a result of this interaction which is said to assist the client in not thinking about negative stimuli which results in mood improvement.

A study by Park and Mattson (2009) looked at how plants in hospital recovery rooms were found to have an impact on therapeutic influences in recovery. The study showed 93% of patient's responded positively to recovery reporting less ratings of pain distress. A study on three modalities of the everyday work involved in gardening, investigated analyzing encounters that are revealed through multi-sensorial engagements and emotional attachments. The 160 participant's were a panel of self-selecting respondents who replied that gardening was pleasurable (Bhatti, Church, Claremont, & Stenner, 2009).

A study by Söderback et al. (2004) looked at the rehabilitative value of horticulture in Sweden. The sample consisted of 46 participant's with brain damage who participated in horticultural group therapy. The researchers hypothesized that horticultural therapy influenced healing, alleviated stress, increased well-being, promoted participation in social life and re-employment for people with mental and physical illness.

Rusk Institute of Rehabilitation Medicine at NYU Medical Center looked at a new model for documenting the effects of horticultural therapy on patients with depression as a result of illness or injury. A benefit of horticultural therapy is the ability to observe a hands-on nature activity in a natural environment (Chambers, 2009). Horticultural therapy in a rehabilitation setting can be easily altered in session based on the performance ability of the individual (Söderback et al., 2004). When engaged in horticultural therapy, in a rehabilitation setting, patients are in an environment that more closely resembles the conditions they will face when they go home and the patient can resume their horticulture therapy at home (Chambers, 2009).

Borg and Davidson (2008) investigated how individuals with severe mental illness experienced the impact on their daily lives and how they overcame these challenges and other barriers to finding their valued social roles as members of their community. The 13 participants were interviewed about everyday

life and how relationships within the community were formed. Everyday life activities include going for a walk in the park or in the woods, gardening, and bicycling. According to the study, adults in this population found these activities challenging socially. The results showed horticultural activities, in addition to everyday life activities, were effective for the participants. When participants described things they could do to make life easier, they mentioned examples like the intense pleasure of standing under a tree and enjoying nature, meditation, music, and gardening.

Horticultural therapy has been used as a mental health treatment modality since the late 1700's, as it was found that the involvement with plants and gardening hurried the recovery of psychiatric patients (Pfeffer et al. 2005). Dr. Benjamin Rush is known as the father of horticultural therapy, he began the first horticultural therapy program in Pennsylvania in 1738. Dr. Benjamin Rush MD, looked at how field labor on a farm had curative effects on patients (Fried & Wichrowski, 2008).

Nature has been used as a therapeutic aid for thousands of years dating back to the Egyptian court physicians who prescribed walking through palace gardens for mentally ill members of royalty (Fried & Wichrowski, 2008). After World War I horticultural activities were utilized with veterans during occupational therapy at Menninger's Clinic. The practice of horticultural therapy when used as an alternative to treat mental health can lend to the reciprocal relationship between a client and the plant, which can contribute to an increase in recovery for a clients' mental health.

Horticultural therapy treatment options

According to a study by Ramsay, Ramsay, and Main (2007), peer counseling and individual counseling increased self-esteem, reduced anxiety and depression, and increased life satisfaction. Individual counseling allows a client to cope with inner conflicts, and work on the ability to have control over their lives in a more private therapeutic setting. Individuals who participate in individual counseling benefit from significantly reduced levels of anxiety and depression (Ramsay, Ramsay, & Main, 2007). The limitation to the implementation of horticultural therapy into individual counseling sessions is the client would lack the experience of having peer support during horticultural activities.

Group counseling allows participants a sense of equality and shared experience which may be beneficial to the client through providing help and advice to group members. There are several benefits of group counseling as it relates to horticultural therapy. Horticultural therapy in group counseling, can create an informal therapeutic atmosphere for the client, and can assist the client in enhancing psychosocial functioning (Ramsay, Ramsay & Main, 2007). A limitation to group horticultural therapy is group confidentiality cannot be guaranteed for all group members.

Psychoeducation is an intervention that is offered to individuals with psychological or physical illness. Information presented in psycho education can be implemented in the form of a website, brochure, or therapist guided multi-session groups (Donker, Griffiths, Cuijpers, & Christensen, 2009). Psychoeducational interventions are beneficial in that they are inexpensive, easily administered, and include accessible educational materials (Donker, Griffiths, Cuijpers, & Christensen 2009). Psycho educational groups in a medical setting are effective in assisting patients to prepare themselves for discharge in addition to complying with their treatment after discharge (Kopelowiscz, Wallace, & Zarate, 1998). Family psycho education is one of six evidenced based practices which are endorsed by the center for Mental Health Services for people who suffer from mental illness (Jewell, Downing, and McFarlane 2009).

According to Jewell, Downing, and McFarlane (2009) family psychoeducational treatments have been developed and supported by over 25 years of research and the clinical impact of family psychoeducational groups is that the group meets the needs of family members dealing with a loved one with a mental illness. The activities in a horticultural therapy psycho educational group are guided by the facilitator only.

The culmination of the literature examined in the literature review addresses my proposed study questions on whether the emotional benefits of horticultural therapy have the potential to be significant. The aim of the current study is to investigate whether horticultural therapy psycho-educational groups are effective as an alternative therapy for adults who have experienced depression due to a life transition circumstance that has an effect on their mood. It is hypothesized in the current study that implementation

of horticultural programs, with a primary focus on adults with a diagnosis of depression can be effective. It is hypothesized in the current research that horticultural therapy seems to be a powerful modality for the treatment of depression.

Method

Setting

The research in this study was conducted at a community agency in a mid size city in the Northeastern part of the United States that serves adults, families, and seniors. The services provided in this agency include mental health counseling, refugee case management, parent preventive services, housing assistance for the homeless, psychiatric rehabilitation outpatient, restart rehabilitation outpatient services, housing for women, and employment services. The clientele served at this agency come in via walk-in, probation or court mandate, child protective services, and referrals from other community agencies which such as schools and primary care physician's. Client's served in this agency range in ages from newborn to age 60 years old. The agency is diverse in terms of race, gender, ethnicity, religious affiliation, and sexual orientation.

The agency services approximately 34,000 client's per year. A large majority of clients come from the area and surrounding counties. However, there are a growing number of refugee resettlement clients. 61.4% of the population served is single women with children who live in poverty. The agency operates off of an annual budget of 26,627,038. The agency receives federal grants from the government, other agencies, and fees for some of the services provided at the agency.

Sample

The sample consisted of seventeen adult participants at the Intensive Psychiatric Rehabilitation Program at Catholic Family Center. The sample population is all adult client's who participate in a rotating schedule of psycho-educational classes in the psychiatric outpatient rehabilitation program. All sampled participants are enrolled in the horticultural therapy psycho educational class.

Participants

17 participants in the Catholic Family Center Intensive Psychiatric Rehabilitation Treatment Program were asked to take part in the current study. Out of 17 participants 13 voluntarily participated in the study. There were 4 individuals who declined participation in the study. The participants included 11 females and 2 males. Participants were adults with a mental health diagnosis of depression. The human subjects are clients in the Catholic Family Center Intensive Psychiatric Rehabilitation Treatment Program. The program focuses on recovery and assisting adults with a mental health diagnosis in choosing, getting, and keeping valued life roles. Participants in this program are referred by their therapist or psychiatrist. The program offers a variety of psycho educational classes which focus on providing support and skill building for mental wellness.

All participants were over the age of 21. The majority of the participants in this study identified themselves as Caucasian/White (80%), while (10%) identified as African American/Caribbean/Black, and the remaining (10%) identified as Hispanic/Mexican.

Materials

Each of the participants were given a packet of instructions which contained information about the horticultural therapy psycho- educational group the packet contained, a statement of informed consent (Appendix A), curriculum outline (Appendix B), and the Beck Like Depression Inventory (Appendix C). Each packet was distributed to the participants. The participants also received a medium sized flower pot, a small bag of soil, a package of marigold or basil seeds, a small spray bottle used to store water, gardening gloves, and painting supplies which included various colors of paint and paintbrushes.

Procedures

A total of 13 participants were given a packet of information regarding the weekly horticultural therapy psycho educational group. The principal investigator read in its entirety aloud to the participants the contents of the statement of informed consent, afterward answering questions regarding the study and the consent form. All participants were informed that their participation in the study was on a voluntary basis. Of the 13 that decided to participate in the study, they were instructed to sign and date the statement of informed consent. The principal investigator reviewed the content of the depression inventory adapted

by Dr. E. Christine Moll (Appendix C) utilized by this researcher with permission. The participants were next asked to complete the depression inventory .

The depression inventory consists of 50 questions which assesses an individual's present state of depressive symptoms, feelings, and behaviors during the past week. The depressive symptom rating scale key of the depression inventory consists of 0-Absent, 1-Mild, 2-Moderate, 3-Marked, and 4-Severe. The inventory was given to the participants individually, prior to group and post group termination. The instrument was not used to determine or diagnose depression. It was used for observing change in indicators of depression.

For the purpose of this study and to maintain participant confidentiality, the participants were dispersed into separate classrooms alone, where they each answered the questions on the inventory. The participants were asked not to place their names on the inventory to maintain participant confidentiality. A numerical coding system was used to pair participants pre and post test numbers, which consisted of the participant's birth month, number of children, and house number.

The horticultural therapy psycho educational group was implemented into an already existing psycho educational class at the Catholic Family Center, Intensive Psychiatric Rehabilitation Program (IPRT) entitled, managing depression. The course focused on knowing and understanding the symptoms of depression, using selected skills and strategies to reduce the impact of depression, and improve functioning for the participant. Participants in the study used horticultural therapy as a treatment to mediate their depression. The group met during mid afternoon for one hour on a weekly basis. The psycho educational groups at the Intensive Psychiatric Rehabilitation Program are rotated every two months, with that said the horticultural therapy group met for 8 weeks.

Results

The data analysis of this study focused on the change in indicators of depressive symptoms. The comparison of data was taken from the change in participants pre and post test mean scores which is listed in Table 1, for each of the 50 items of the depression inventory adapted by Dr. E. Christine Moll (Appendix C).

Table 1: Depression inventory mean pre and post scores.

N=13

Item #	Pre-Test Mean Score	Post-Test Mean Score	Δ
1	2.15	1.23	0.82
2	1.23	0.61	0.62
3	1.54	1.15	0.39
4	1.67	1.31	0.36
5	1.54	1.00	0.54
6	1.62	0.92	0.70
7	1.69	1.00	0.69
8	3.15	2.53	0.62
9	2.46	2.08	0.38
10	1.85	2.00	-0.15
11	1.23	1.54	-0.31
12	2.08	1.46	0.62
13	2.31	1.46	0.85
14	1.38	1.08	0.30
15	2.00	1.38	0.62
16	0.77	1.00	-0.23
17	1.38	1.31	0.07
18	1.31	0.61	0.70
19	0.69	0.92	-0.23
20	1.31	1.31	0.00
21	1.15	1.23	-0.08
22	1.23	1.15	0.08
23	2.46	1.08	1.38
24	2.38	1.00	1.38
25	1.61	1.23	0.38
26	1.23	0.85	0.38
27	1.38	0.77	0.61
28	1.08	0.69	0.39
29	2.00	1.54	0.46
30	1.30	1.54	-0.24
31	1.77	1.15	0.62
32	1.69	1.08	0.61
33	0.85	0.45	0.40
34	0.31	0.61	-0.3
35	0.46	0.54	-0.08
36	2.46	1.85	0.61
37	2.08	1.62	0.46
38	1.62	1.31	0.31
39	0.92	0.69	0.23
40	0.77	1.00	-.0.23
41	1.23	0.92	0.31
42	0.85	1.08	-0.23
43	0.92	0.77	0.15
44	1.31	1.07	0.24
45	0.54	0.85	-0.31
46	0.77	1.00	-0.23
47	1.61	1.77	-0.16
48	1.31	0.62	0.69
49	1.00	1.31	-0.31
50	0	0.62	-0.62

It was concluded that change in item 1 which focused on feelings of depression and sadness was 0.82 which represents a significant change in the decrease in these symptoms. The depression inventory items of decreased weight, increased sexual interest, and mood worse in the morning all had an increase in symptoms. Visual and auditory hallucinations, in addition to feelings of paranoia increased in post group termination. Data results indicate a change of -0.23 for the corresponding items numbers, 16, 17, 40, 42 and 46.

The data reflected in items 2,12 and 31 represent a significant change in the decrease of indicators of the following symptoms, lack of good news has a negative effect on depressed mood, drowsiness, and worse mood in the afternoon. However, item 30 which reflects worse mood in the morning had a significant increase post group termination. In the data analysis of dissociative identity symptoms, increase in sleep, and the ability to control impulses the change between mean post and pre inventory scores reflected the same score of -0.31 which indicated a slight increase in these symptoms as well.

The items of the inventory that reflect the highest decrease in symptoms according to the data collected all were reflective of the participants sleep patterns which include items 8, 9, and 10 of the depression inventory. The items focused on difficulty falling asleep, waking up in the middle of the night, and waking up in the morning several hours prior to scheduled wake up time. There was no significant change noted in decreased interest in usual activities.

For all participants n=13, the decrease in the following symptoms were noted in the data analysis. There was a significant decrease in mood worse in the afternoon, sleep patterns, feelings of sadness, and feelings of depression. The results of the data analysis provided evidence that a horticultural therapy psycho educational group can be used to mediate or treat symptoms of depression.

Discussion

The current study aimed to determine if a horticultural therapy psycho-educational group was effective in decreasing symptoms of depression in adults with a diagnosis of depression. It was hypothesized from the researcher that adults diagnosed with Major Depressive Disorder who participate in a horticultural therapy psycho educational group can mediate their symptoms of depression as a result

of participating in horticultural therapy. According to the results compiled in this study, the majority (13) of the participants experienced a decrease in some symptoms of depression.

The findings in this study are similar to that of Söderback et al. (2004) who found that the rehabilitative value of horticultural therapy influenced healing, alleviated stress, increased well-being, and promoted participation in social life and re-employment for people with mental and physical illness. The study showed 93% of patients responded positively to recovery reporting less ratings of pain distress. Prior studies have been conducted by Borg and Davidson (2008) that looked at the effectiveness of horticultural therapy with individuals who experience severe mental illnesses and how they experienced the illness, its impact on daily life, and how they overcome challenges. The 13 participants results showed horticultural activities, were effective for the participants in this particular study.

Additional studies by (Chambers, 2009; Fried & Wichrowski, 2008; Söderback, Söderström, & Schälander, 2004) all conducted horticultural therapy in a rehabilitation setting with patients with depression as a result of illness or injury. Most of these studies looked at how the performance ability of participants can be altered based on the level of performance in a participant who is severely and persistently mentally ill that participates in a horticultural psycho-educational group.

Unlike most prior studies conducted, the research presented in this study used one depression inventory based on the findings from the participant's answers to the inventory prior to group and post group termination. It is important to take into consideration how an individual perceives their own personal level of depression based on individual symptoms. One participant's symptom may not be reflective of another participants experience with that same symptom.

Due to the inventory utilized by this researcher adapted by Moll (year?), more studies of this kind need to be conducted to determine true validity and reliability. However, aside from the lack of validity and reliability, when looking at the overall results of the inventory results seem to be consistent with that of this researchers hypothesis.

Limitations

One limitation that should be taken into consideration is the number of participants who agreed to take part in the study. All 17 clients agreed to participate in the horticultural therapy psycho-educational group. However, there were only 13 of 17 participants who agreed to take part in the study thus not making the sample size reflective of all 17 of the clients who participated in the psycho-educational group only. Another limitation noted was gender, of the 13 participants who were among the study, 11 were female thus leaving only 2 males in the study. The results of this study could have contained a larger varied diverse sample size in terms of gender.

Another point to take into consideration is the issue of group confidentiality. While all 17 clients participated in the horticultural therapy psycho-educational group, 13 volunteered to be apart of the study, and while individual participant confidentiality is guaranteed by the researcher group confidentiality cannot be guaranteed which may have impacted participant disclosure during group.

One of the major limitations to consider is the participants who volunteered to be apart of the study all reported symptom decrease and increase via a rating scale self reporting inventory and in class discussion over an 8 week period due to program class rotation. Participants personal experience with re-occurring depressive symptoms was not able to be explored thus allowing for the lack of data measured in this area.

Implications for future research

The study conducted by this researcher looked at the effectiveness of a horticultural therapy psycho educational group as an alternative treatment and to mediate symptoms for adults with a mental health diagnosis of depression. Similar studies should be conducted; with more emphasis on the adult population to get a more realistic understanding of how horticultural therapy is effective for adults with a mental health diagnosis of depression. Of the literature examined for this study the researchers in similar studies have worked with adults, children, and the elderly and in a variety of therapeutic settings.

Future researchers may also want to take into account client outcomes based on the data collection instrument used for a psycho-educational horticultural therapy group. Participant self report on the inventory should also focus on statistical data of reoccurring symptoms of depression post a horticultural

therapy psycho educational group. Then a comparison between the reoccurrence rate of depressive symptoms for individuals who participate in a horticultural therapy psycho-educational group and clinically depressed individuals who do not participate in a horticultural therapy group can be explored.

Lastly, a larger sample size that is more diverse in terms of gender should be considered for use in future studies with the adult population. The sample population should fairly represent gender. Therefore, it will increase reliability and validity of the study.

Implications for counselors

Major Depressive Disorder has been treated by medication, alternative therapies, and holistic remedies such as acupuncture. Horticultural therapy psycho-educational groups are a non medicinal therapeutic option which can be an effective treatment for a client who is clinically depressed. As helping professionals it is effective for professional growth to be knowledgeable of new research regarding treatment for Major Depressive Disorder. Although medicinal therapy in addition to alternative psycho-educational therapy is a reality counselors and therapist remain cognizant of several treatment options depending on the individuals needs. The counseling profession and treatments for mental health maintenance are constantly evolving. Research on alternative therapies and treatments for Major Depressive Disorder creates a learning atmosphere which lends itself to professional growth for counselors, therapist, helping professionals and their practices.

Conclusion

According to the research examined, the emotional benefits of horticultural therapy have the potential to be quite significant. The research questions to be examined includes whether a horticultural therapy psycho-educational group is a positive alternative therapy for adults who have experienced depression due to a life transition circumstance that has an affect on their mood. The short comings of the research examined are a lack of focus on individuals who suffer from more than one episode of depression. Additional research should examine the implementation of horticulture therapy programs in other settings such as prisons and jails these settings were not mentioned in the literature examined. As counselors it is our job to engage in current practices, techniques, and therapies that will enhance growth

as a professional. Horticultural therapy adds hands on therapeutic alternative for treating depression in adults and can contribute to the growth of recovery from depressive symptoms.

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Appendix A

Statement of Informed Consent

Statement of Informed Consent

The purpose of this research project is to examine the effect of horticultural therapy on adults with a mental health diagnosis of depression. The areas that will be studied are the reciprocal relationship between a plant and a person and managing depression via an alternative to mental health self care through gardening. This research project is also being conducted in order for the principal investigator to complete her masters thesis for the Department of Counselor Education at the State University of New York College at Brockport.

In order to participate in this study, your informed consent is required. You are being asked to make a decision whether or not to participate in the project. Refusal to participate in this project will not affect services currently provided to you. If you want to participate in the project, and agree with the statements below, please sign your name in the space provided at the end. You may change your mind at any time and leave the study without penalty, even after the study has begun.

I understand that:

1. My participation is voluntary and I have the right to refuse to answer any questions.
2. Confidentiality cannot be guaranteed during the group but responses on the pre and post test will be kept confidential via a numerical coded system which will be used for matching purposes. If any publication results from this research, I would not be identified by name.
3. There will be no anticipated personal risks or benefits because of my participation in this project.
4. My participation involves reading and answering a written inventory of 50 questions and answering those questions in writing at the beginning of the psycho-educational group and at the end of the group. It is estimated that it will take approximately twenty minutes to complete the inventory. The class will meet twice a week for an hour. The class will follow the IPRT two month class rotation schedule. Class participants will learn about basic gardening techniques, plant maintenance, and participate in group discussions on the reciprocal relationship between participant and plant and how this relationship can contribute to the stages of recovery.
5. Approximately ten people will take part in this study.
6. Data will be kept in a locked filing cabinet by the investigator. Data and consent forms will be destroyed by shredding when the research has been accepted and approved.

I am 18 years of age or older. I have read and understand the above statements. All my questions about my participation in this study have been answered to my satisfaction. I agree to participate in the study realizing I may withdraw without penalty at any time during the survey process.

If you have any questions you may contact:

Letitcia Y.Alston, Primary Researcher	Dr. Tom Hernandez, Professor
(585) 305-2986	Counselor Education Department (585) 395-2258
lalst1@brockport.edu	thernandez@brockport.edu

_____ _____

Participant Signature Date

Appendix B

Horticultural therapy psycho educational group curriculum

Horticultural therapy psycho educational group curriculum

Week 1- Introduction to the class and the implementation of horticulture activities, group discussion on group and individual confidentiality, review of consent forms, establish group rules and expectations of participants and principal investigator, administer depression inventory individually.

Week 2- Class discussion on understanding the symptoms of depression, explore participants experience with personal strategies they have used to cope with depression, discussion with the group on horticultural therapy and it's components, Q&A period, class discussion on confidentiality.

Week 3- Class members will receive their own flower pot and painting supplies to individualize the pot, the pot represents the foundation source of recovery, group discussion on this topic. Class discussion on confidentiality.

Week 4- Class discussion of plant maintenance, participants receive soil, gardening gloves, watering can, and seeds, participants assemble items for planting to take place, group discussion on which part of participants recovery of depression does the gardening items represent. Class discussion on confidentiality.

Week 5- Plant maintenance (Ex. watering plant, adjust position of plant if needed, etc.) class discussion on feelings regarding caretaking and the role caretaking has in the participants current symptoms of depression and recovery. Class discussion on confidentiality.

Week 6- Plant maintenance, class discussion on plant progress with special emphasis on differences in participant's plants and how it relates to differences in participants recovery from depression, discussion about class progress and how the participant's growth of the plant is not a factor that contributes to participant's success in the group. Class discussion on confidentiality.

Week 7- Plant maintenance, class discussion on how participants have managed depressive symptoms through horticulture, evaluation by participants on the stage of their recovery of depression, introduction to the idea of a community gardening project, discussion on class termination. Class discussion on confidentiality.

Week 8- Plant maintenance, class participant discussion of their experience in group, process participants growth of plant and caretaking of plant, group discussion on how the horticultural therapy class contributed to the level of recovery of depression, process if some participants did not find it helpful, class discussion on confidentiality, give post depression inventory individually.

Appendix C

Beck like inventory

Beck Like Inventory

PIease rote how you have been feeling during the past week including today:
Key: 0-AbsenT l-Mild 2-Moderate 3-Markcd 4-Severe

1. Depressed, sad	0	1	2	3	4		26.I move slower; sit in one place for long periods	0	1	2	3	4
2. I am so depressed that not even good news would cheer me up	0	1	2	3	4		27. So restless I can't sit still or relax	0	1	2	3	4
3. Angry and hostile	0	1	2	3	4		28. Thoughts slowed down	0	1	2	3	4
4. Decreased Self-esteem or self confidence .low thoughts about. myself	0	1	2	3	4		29. Racing thoughts	0	1	2	3	4
5. *Guilt* feelings. feeling like a. burden to *family* or Society	0	1	2	3	4		30. Mood worse in morning	0	1	2	3	4
6. Hopelessness, things will not get better	0	1	2	3	4		31.Mood worse in evening	0	1	2	3	4
7. Helplessness, I can't change things	0	1	2	3	4		32. My mood changes very rapidly	a	1	2	3	4.
13. Trouble failing asleep	0	1	2	3	4		33. Thoughts of suicide wishing , I were dead or not caring if I live	0	-	2	3	4
9. Waking up In the middle of night	0	1	2	3	4		34. Intent to kill myself	0	1	2	3	4
. 10. Waking in the morning 1-2 hours before. I need to '	0	1	2	3	4		35. Wanting to hurt or punish myself (not suicide)	0	1	2	3	4
11. Sleeping more than usual	0	1	2	3	4		36. Anxious nervous worried	a	1.	2	3	4
12. Drowsy during the day	0	1	2	3	4		37. Physical anxiety symptoms like my heart beating oddly. being short of breath, tremor, butterflies in my stomach. ' frequent urination; sweating, muscle tension. numbness in my hands or feet	0	1	2	3	4
13. Fatigue, low energy, hard to get going	0	1	2	3	4		38. So afraid of certain things or Situations that I avoid them	0	1	2	3	4
14. Decreased appetite	0	1	2	3	4		39. Sudden severe feelings that something terrible Is going to happen like I will die. go pass out	0	1	2	3	4
1 5. lncreased appetite	a	1	2	3	4		40. Hearing voices or seeing that are not there	0	1	2	3	4
16 Decreased weight	0	1	2	3	4		41. Believing things that others not believe	0	1	2	3	4
17. lncreased Height	0	1	2	3	4		42. Feeling suspicious of others, that others want to hurt me or are against me.	0	1	,2	3	4
16. Increased sexual interest	0	1	2	3	4		43. Unpleasant. unrealistic Thoughts go over and over in my mine and I can't stop them	a	1	2	3	4
19. Increased sexual interest	0	1	2	3	4		44, Feeling compelled to do Senseless things over and over	0	1	2	3	4
20. Decreased interest In usual activities	0	1	2	3	4,		45. Feeling I am some other or am outside my body	a	1	2	3	4
21, Decreased Interest In usual activities withdrawn	0	1	2	3	4		46. Feelings things are not real like in a fog or dream world	0	1	2	3	4
22. Decreased pleasure or less	0	1	2	3	4		47. Worried about my physical	0	1	2	3	4

enjoyment of usual activities							health					
23. Decreased memory	0	1	2	3	4		48. F feeling rejected by others	0	1	2	3	4
24. Decreased concentration	0	1	2	3	4'		49. Unable to control my impulses	0	1	2	3	4
25. Indesciveness-unable to make decisions	0	1	2	3	4		50. Drinking alcohol or using recreational drugs	0	1	2	3	4

Appendix D

Intensive psychiatric rehabilitation program (IPRT) horticultural therapy group flier

Always do right. This will gratify some people and astonish the rest.

- Mark Twain

IPRT Clients!!!!!!!!!

Please join us as we celebrate the growth of recovery! The Managing Depression Psycho-educational class is proud to announce an exciting hands-on activity in collaboration with the class. The class has implemented a horticultural therapy research study in conjunction with the managing depression class. The horticultural activities include an introduction to basic gardening elements, plant maintenance, and group discussion.

If you would like to participate in the class, please call:

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